

participants could distinguish between: standard versus 350 mg or standard versus 300mg sodium breads (analysed using binomial probability). Participants also tasted all three breads in a random, and balanced, order and rated their liking of sensory characteristics (appearance, colour, flavour, sweetness, saltiness, texture, softness, overall liking); differences between breads were analysed using ANOVA with  $p < 0.05$  set for significance.

**Results:** Participants were unable to detect a difference between standard and reduced-salt breads (300 mg or 350 mg/100 g) in both WtBT and WmBT ( $p > 0.05$ ). There were no significant differences in sensory characteristics between standard, 300mg or 350mg sodium breads in WtBT or WmBT ( $p > 0.05$ ).

**Conclusions:** In a sample of Indigenous Australians living in a remote community, 25% salt reduction in bread was not detected, and no effects on liking were observed. Salt reduction in bread could be an important strategy to reduce the excess salt intake observed in remote Indigenous communities

**Funding source(s):** National Heart Foundation Future Leader Fellowship; Goodman Fielder.

### TRENDS IN DIETARY SODIUM INTAKE IN AUSTRALIAN CHILDREN AND ADOLESCENTS FROM 2007 TO 2011–13

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**Background/Aims:** The 2009 Food and Health Dialogue set maximum sodium levels for a range of food product groups. It is unclear if these initiatives have reduced population sodium intake. The aim of this study was to assess changes in sodium intake from food sources in Australian children aged 2–16 years from 2007 to 2011–13.

**Methods:** We compared data from the 2007 Children's Nutrition and Physical Activity Survey ( $n = 4487$ ) and the 2011–13 National Nutrition and Physical Activity Survey ( $n = 2548$ ). Intakes of energy and sodium were assessed via one 24-hr dietary recall and under-reporters were excluded ( $n = 330$ ). Statistical analysis accounted for population weightings and the complex survey design.

**Results:** Mean sodium intake of children aged 2–8 years was 2042 (95%CI: 2002, 2083) mg/d in 2007 and 1943 (1870, 2016) mg/d in 2011–13; 9–16 years was 2928 (2850, 3007) mg/d in 2007 and 2717 (2607, 2827) mg/d in 2011–13. The sodium density of the diet in children aged 2–8 years was 289 (283, 294) mg/MJ in 2007 and 284 (275, 293) mg/MJ in 2011–13; 9–16 years was 302 (296, 308) mg/MJ in 2007 and 290 (281, 300) mg/MJ.

**Conclusions:** There was a 7.2% reduction in dietary sodium intake between 2007 to 2011–13 in 9–16 year olds, and no fall in those aged 2–8 years. However there was no indication of a change in sodium density. This apparent reduction of sodium intake in older children requires further exploration of the potential changes in sodium content of main food sources of sodium.

**Funding source(s):** NHF of Australia.

### THE ASSOCIATION BETWEEN 24-HOUR URINARY SODIUM AND IODINE EXCRETION IN A SAMPLE OF VICTORIAN SCHOOL-AGED CHILDREN

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**Background/Aims:** A reduction in the salt content of foods such as bread continues to be the main focus for sodium reduction strategies. As mandatory fortification of bread with iodised salt is the main vehicle for iodine fortification in Australia, there is concern that reducing the salt content of bread may adversely affect iodine status.

We aimed to assess i) the relationship between 24-hour urinary sodium (UrNa) and urinary iodine excretion (UIE) and ii) the relationship between bread consumption and UIE in Victorian schoolchildren.

**Methods:** A cross-sectional study of 5–12 year old Victorian primary school

children. Sodium and UIE were assessed using 24-hour urine samples. Bread intake (g/d) was determined via 24-hour dietary recall, completed in a sub-sample of children aged  $\geq 8$  years.

**Results:** Valid 24-hour urine samples were provided by 650 children [ $n = 359$  boys, mean (SD) age 9.3(1.8) years] and 448 provided dietary recalls. Mean UrNa and UIE were 104 (48) mmol/24 hr and 104 (54)  $\mu\text{g}/24$  hr, respectively. UrNa was positively associated with UIE ( $r = 0.36$ ,  $p < 0.001$ ). In the sub-sample of children with dietary recalls, 86% ( $n = 386$ ) reported consuming bread and mean consumption was 83.6 (62.1) g/day. There was no association between bread intake and UIE ( $r = 0.01$ ,  $p = 0.82$ ).

**Conclusions:** UrNa and UIE were significantly correlated, indicating some common dietary sources of iodine and sodium. No association between bread (containing iodised salt) consumption and UIE was evident in this population, which may indicate a higher contribution of other foods to iodine intake.

**Funding source(s):** Australian Postgraduate Award, NHF of Australia, Helen MacPherson Smith Trust Fund.

### THE INFLUENCE OF SOCIOECONOMIC STATUS ON SODIUM INTAKE IN A SAMPLE OF AUSTRALIAN SCHOOL CHILDREN

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**Background/Aims:** Excessive dietary salt in childhood has impacts on blood pressure and the establishment of taste preferences. This study explores the association between socioeconomic status (SES) and salt intake assessed by 24-hr urinary sodium excretion in Australian children.

**Methods:** Cross-sectional study conducted with a convenience sample of children aged 4–12 years, in 42 Victorian primary schools. Total sodium intake was determined using a single 24-hr urine sample. SES was defined by parent education level, and split into three levels. Between group differences were determined using linear regression with cluster robust standard errors to account for school clusters.

**Results:** Valid urine results and SES data were available for 569 children with mean (SD) age of 9.2 (1.9) years with a mean  $\pm$  SEM sodium excretion of  $102 \pm 2.2$  mmol/d. For low ( $n = 137$ ), medium ( $n = 85$ ) and high ( $n = 347$ ) SES groups, sodium excretion was  $110 \pm 4.0$ ,  $100 \pm 3.6$  and  $99 \pm 2.7$  mmol/d respectively. Sodium excretion differed across SES groups ( $p < 0.05$ ). Further adjustment for age, gender and day type of the urine collection did not change this result.

**Conclusions:** Children in lower SES families have an 11% higher mean intake of salt compared to those in higher SES groups. Given the lifelong health impacts of higher salt intake, this should be considered in the development of future public health interventions.

**Funding source(s):** NHF.

### SALT REDUCTION IN AUSTRALIA AND NEW ZEALAND: HOW DO WE COMPARE WITH THE REST OF THE WORLD?

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**Background/Aims:** Excess salt intake is a major determinant of raised blood pressure and cardiovascular risk, responsible for an estimated 1 in 10 cardiovascular deaths worldwide. In 2013, all World Health Organization countries committed to achieving a 30% relative reduction in mean population salt intake by 2025. The study reviews progress in Australia and New Zealand compared to other countries.

**Methods:** Salt reduction initiatives were identified from a systematic search of published and grey literature, accompanied by questionnaires sent to country program leaders. The programs in Australia and New Zealand were compared against other countries based on strategic characteristics extracted from a pre-defined framework.

**Results:** Neither Australia or New Zealand currently has a nationally co-ordinated government-led salt reduction strategy. However, both

countries have strong non-governmental organization (NGOs) action. Existing initiatives include engaging industry with voluntary salt targets, consumer education and voluntary front of pack labelling. However neither country are amongst the 12 countries that have reported reductions in population salt intake, nor do they have any forms of legislative salt action; this compares with 33 countries who have national salt standards for foods procured in public institutions, salt content limits in foods, mandated front-of-pack labelling or targeted taxation on high-salt foods. **Conclusions:** Current salt reduction activity is insufficient to achieve the global salt target by 2025 in either Australia or New Zealand. More effective, well-resourced, nationally-coordinated government strategies, collaborating with and leveraging the existing efforts of NGOs, are urgently needed.

**Funding source(s):** NHMRC, VicHealth, World Health Organization.

#### PROVISION OF ADEQUATE DAIRY FOOD WILL ALLEVIATE MALNUTRITION IN AGED-CARE

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**Background/Aims:** Malnutrition increases risk of falls, fractures, poor wound healing and adds substantial cost to resident care due to the burden of identification, treatment and monitoring of malnutrition in aged-care. Meat and dairy are good protein sources so inadequate intakes will contribute to malnutrition.

**Methods:** We assessed dietary intake in 215 ambulant aged-care residents from 21 facilities (70.2% females, mean age 85.8 years). Foods were analyzed for nutrient content using FoodWorks. Food serves were based on the Australian Guide to Health Eating. Nutrition risk was determined using the Mini Nutrition Assessment (MNA) tool. Protein requirement was based on Australian standards. Data was analyzed using robust regression.

**Results:** Sixty-eight percent of residents were malnourished or at risk of malnutrition. Mean MNA score was  $21.6 \pm 3.7$ . Dietary protein intake was  $55.6 \pm 16.1$  g ( $86.7 \pm 27.8\%$  of recommended). Residents consumed on average 1 serve of each meat and dairy daily. Number of dairy ( $p < 0.001$ ) but not meat serves related to proportion of recommended protein intake; one more dairy serve would contribute 14% to recommended levels, so on average, residents would meet protein needs. Both number of dairy ( $p < 0.001$ ) and meat ( $p < 0.05$ ) serves contributed to MNA score; 1 additional dairy serve would contribute 4 points on the MNA, meat 1 point; on average residents achieve normal nutrition status with the dairy serve.

**Conclusions:** Including at least one additional dairy serve on menus at aged-care facilities, will reduce malnutrition, and so, potentially the comorbidities and cost associated with malnutrition.

**Funding source(s):** Dairy Australia on behalf of international dairy consortiums.

#### PREVENTION OF DIABETES THROUGH LIFESTYLE INTERVENTION IN EUROPE AND THE WORLD [PREVIEW]: RCT UPDATE FOR NZ AND AUSTRALIA

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**Background/Aims:** PREVIEW is a 6-yr EU project (2013–2018) within the FP7-KBBE program with 12 partners from Europe, plus New Zealand (NZ), Australia (AUS) and Canada. The primary goal is to identify the most efficient lifestyle pattern for prevention of type-2 diabetes (T2D) in a population of pre-diabetic overweight or obese individuals.

**Methods:** The project includes a 3-yr,  $2 \times 2$  factorial, randomised clinical trial (RCT) enrolling 2,500 participants across 6 European countries plus NZ and AUS, investigating impact of diet + exercise on T2D incidence and

related end-points. Diet compares lower-fat / higher protein (HP) / lower glycemic-index (GI) based on DioGenes vs. lower fat / moderate protein (MP) / moderate GI based on Finnish DPS and USDP; exercise compares moderate (MI) vs. high intensity (HI) activity. An 8-wk weight loss phase on a low-energy diet (LED) for  $> 8\%$  body weight loss is followed by randomisation to weight maintenance in 4 intervention arms (HP/MI, MP/MI, HP/HI, HP/MI) for 3-yr.

**Results:** NZ and Aus have pre-screened 4,762 adult participants, screened 1,179 in clinic using OGTT, and enrolled 516. LED-weight-loss of  $> 8\%$  was achieved in 75% ( $n = 389$ ) of participants. Average age is 50 yr, with  $\sim 2/3$  female.

**Conclusions:** PREVIEW, including NZ and AUS, has now completed recruitment and LED phase, with eligible participants continuing into the randomised 3-yr weight maintenance, with completion in 2018.

**Funding source(s):** EU 7<sup>th</sup> Framework Programme; Health Research Council of NZ and University of Auckland Faculty Research Development Fund; NHMRC-EU Collaborative Grant, Australia. Cambridge Weight Plan UK donated low energy diet products.

#### MEDITERRANEAN DIETARY ADHERENCE AMONGST OLDER AUSTRALIANS OVER 6 MONTHS: RESULTS FROM THE MEDLEY TRIAL

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**Background/Aims:** We aim to present the results of the dietary changes achieved during the Medley trial (Mediterranean diet (MedDiet) for cardiovascular and cognitive health in the elderly).

**Methods:** Volunteers ( $n = 166$ , age: 65–86 y, 85 females) were randomly assigned to follow either their habitual diet (HabDiet) or the MedDiet for 6 months. Food and nutrient intakes were measured by 3-day weighed food records (WFR) completed at baseline, 2 months and 4 months. Baseline and changes in dietary intake and two MedDiet adherence scores were calculated for all volunteers. Differences between groups were assessed using a linear mixed effects model, and Pearson's correlations were used to compare MedDiet adherence scores.

**Results:** One hundred and thirty-seven volunteers completed the trial (70 MedDiet, 67 HabDiet). Participants following the MedDiet had lower cholesterol and % energy from saturated fat ( $p < 0.0001$ ) and consumed more fibre, iron, vitamin C and total, monounsaturated, polyunsaturated and long chain omega-3 fatty acids ( $p = 0.025$ ) compared to the HabDiet group after 4 months. Based on a maximum 15 point MedDiet adherence score, mean score amongst the MedDiet group increased from  $7.2 \pm 2.0$  to  $8.9 \pm 2.2$  ( $p < 0.001$ ), compared to  $7.3 \pm 2.1$  to  $6.4 \pm 1.9$  in the HabDiet group ( $p = 0.001$ ). Scoring adherence against the food intakes of the Greek cohorts from the Seven Countries Study yielded similar results ( $r = 0.581$ ,  $p = 0.001$ ).

**Conclusions:** Older Australians were successful at adhering to a MedDiet over 4 months. This may have positive health implications if maintained in the long term, however this needs further investigation.

**Funding source(s):** NHMRC.

#### GREEN LEAFY VEGETABLES AND CARDIOVASCULAR MORTALITY IN ELDERLY WOMEN: A PROSPECTIVE COHORT STUDY

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**Background/Aims:** Vegetable intake is consistently associated with reduced risk of CVD in observational studies. Fewer studies have investigated the link between green leafy vegetables and CVD, and the

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